# Blueprint for Operationalizing New Currencies

**Version 1.1**

Paramount
ADVERTISING

# TABLE OF CONTENTS


| | | |
|---|---|---|
| 01 | New Currency Overview and Blueprint Purpose | 3 |
| 02 | Evaluating and Onboarding New Currency Providers | 3 |
| 03 | End to End Process Overview to Operationalize New Currency Data | 5 |
| 04 | Currency Data Processing | 6 |
| 05 | Data Implementation | 12 |
| 06 | Demo-based Integrations | 13 |
| 07 | Advanced Audience System Integrations | 14 |
| 08 | Appendix: Sample Data Schema | 18 |

# 01 New Currency Overview and Blueprint Purpose

The advertising industry is undergoing a transformation, leveraging new “big data” currencies in pursuit of providing agencies and advertisers with new, sophisticated ways to define audiences, and to plan, value and measure multi-platform and convergent buys. One of the foundational steps in enabling this transformation is the integration of new currency data into media companies’ advertising sales operations and technology.

This blueprint outlines the end-to-end integration of new currencies into demo-based and advanced audience linear planning and operating systems, based on Paramount’s experience, systems, and operations.

This blueprint IS NOT an assessment of various currency vendors, data sets, methodologies. It is also not intended to set standards, and is only an overview and summary of process, best practices and lessons learned by Paramount in the course of building and growing our new currency capability.

# 02 Evaluating and Onboarding New Currency Providers

There are several considerations when selecting and bringing on new currency providers. Publishers must weigh operational and technical impact of receiving new currency data, data stability and quality, and the buy-side demand to plan and steward campaigns using the new currency data.

As with any emerging technology, new currency providers and the data are continuing to mature. While there have been significant advances in new currency data, new currency providers and publishers need to remain flexible and adaptable as new data becomes available, methodologies are refined, and processes are optimized.

## General Considerations When Evaluating New Currency Partners

- **Due diligence and alignment of requirements is the first step.** It is important to work closely with new currency providers, conducting due diligence and setting requirements prior to receiving the first currency data feeds for ingestion into systems.

- **Disruption should be minimized to existing business processes and downstream advertising systems.** Throughout the implementation of new currency data into advertising systems, teams should focus on transforming new currency data, and integrating data provider workflows into existing systems and operations, while minimizing disruption to ongoing operations and reducing the need for change management.

## Initial Assessment of Data Accuracy and Stability

In addition to providers meeting baseline onboarding requirements, publishers need to assess the accuracy and stability of the data. It is recommended to perform the steps below, evaluating against total HHs, HHs with key demographics, personified demos, and certain common audience segments.

- **Step 1**: Gather the new currency's historical data sets and check if required fields are present in the data sets.

- **Step 2**: Assess the stability/stationarity of the viewership data over multiple broadcast quarters to determine if the data is stable enough to make reasonable long-term forecasts (e.g., for upfront pricing).

- **Step 3**: Determine if the new currency's historical data sets align with publisher's data (i.e., are known events aligned in both the new currency data and the publisher's metadata).

- **Step 4**: Look for total viewership spikes, trends, and ranking order of shows across broadcast and cable compared to expectations.

## Align on Data Granularity, Schema, and Metadata to Improve Systems Integration and Compatibility

To be fully onboarded, work with currency providers to:

- **Provide historical data** to inform estimates and/or prediction models. Historical data timeframe requirements may vary across the industry, but analysis has shown that two years of historical data is ideal for prediction models to pick up on trends to inform future estimates.

- **Ingest program and commercial metadata** sent from the publisher to ensure consistency between various currency vendor data sets and reporting: Publisher metadata is sent to each currency provider on a regular basis including commercial log data, programming data, and time periods used for various national time zones. It's a best practice to ask that all currency providers leverage the same metadata in order to standardize the data the publisher receives back and avoid any subsequent data adjustment. Publisher metadata must be provided to the currency provider in a standardized and ingestible format to ensure alignment.

- **Align on the file schema** and level of aggregation with the new currency provider during onboarding. The currency partner will be provided with a set of required and optional fields based on the agreed upon schema and need of the publisher. A sample schema is in Exhibit 1.

- **Align on the level of data granularity** that is allowed or supported, if there are limitations on data granularity, align on a solution that meets the business needs.
    - Disaggregated (household level) segment data access is needed when optimizing for reach and evaluating convergent measurement.
    - In other cases, it is only necessary to receive aggregated data (i.e., telecast impressions at the demo/audience level).

## Considerations, SLAs, and Process for Vendor Source Data and Methodology Changes

With continued improvements in data availability and emerging technologies, it's anticipated that currency providers will continue implementing additional data sources and update their methodologies to enhance viewership data and insights. While data consistency and stability are key to being a currency, integrating additional data increases the precision for impression-based advertising and measurement.

When currency providers obtain updates that increase scale and accuracy (e.g., incorporating new MVPD or ACR partners), it is important to ask for a detailed explanation of the change, a thorough analysis of the impact the change will have on viewership data, and two years of historical data based on the new data/methodology at least ten months prior to the change becoming effective. The effective date must align with the new broadcast year, allowing time to ingest and integrate the data into prediction models for upfront estimates and planning.

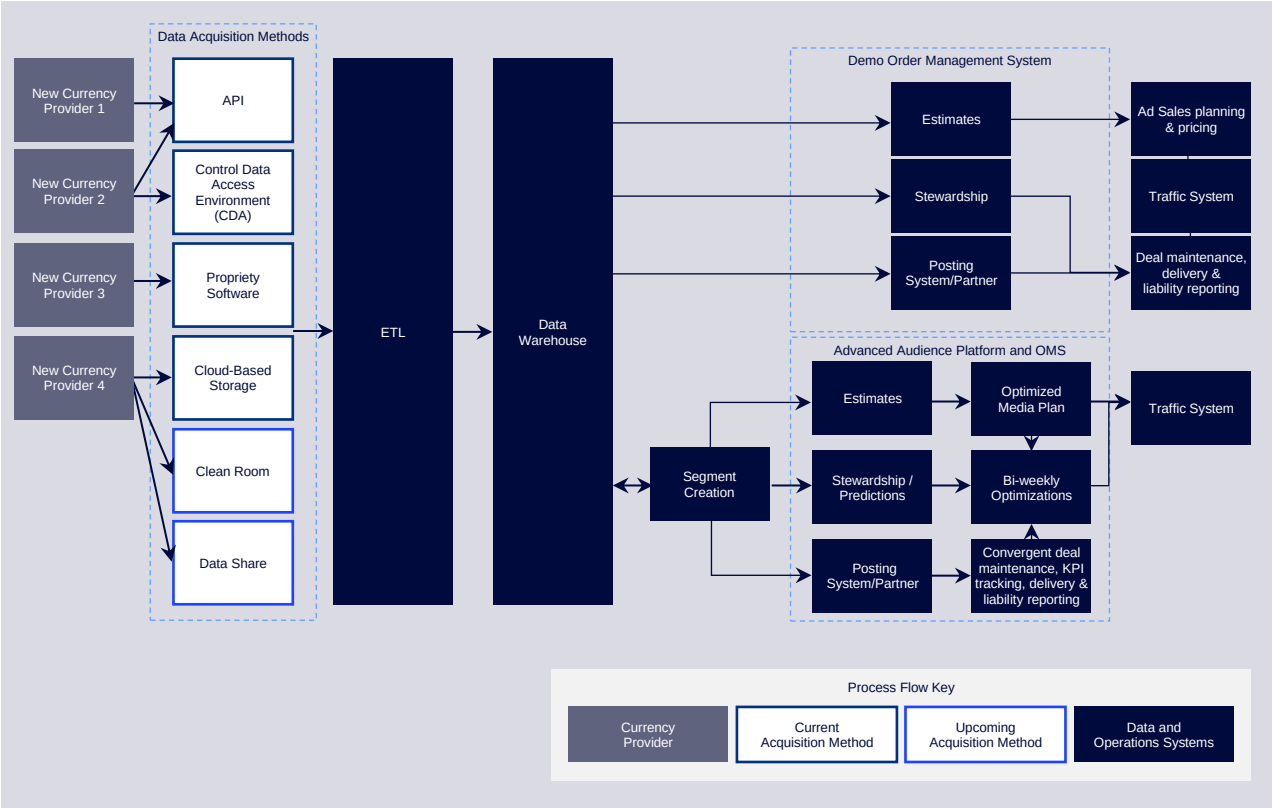
Publishers should structure their system to support dual streams of data for methodology updates. This allows for activation and stewardship with the existing dataset while being able to estimate and plan for the next year with the new data stream.

# 03 End-to-End Process Overview to Operationalize New Currency Data

The process for operationalizing new currency can be broken into a few major pieces, including (1) data processing, (2) prediction modeling, and (3) the application of new currencies in demo-based and advance audience campaigns.

Each publisher's technology landscape and resources are different, and the system and operational changes needed to implement the above processes will also vary. This guide can be used to determine areas where changes in current systems or additional capabilities will be needed.

## Figure #1: End-to-end process flow




# 04 Currency Data Processing (Acquisition, Validation, Transformation & Storage)

This section will cover the steps completed for publishers to acquire, standardize, validate, transform, and ingest data into systems and databases. Publishers should establish detailed guidelines of data processing hygiene for teams to follow early.

## How Data is Acquired

Currency partner data can be acquired via the following means:

- **Application Programming Interface (API):** A method of requesting and receiving relevant files through an interface system.

- **Propriety Software:** A software application provided by the currency partner to acquire data from their system

- **Cloud-Based Storage:** A cloud-based data storage service that can be used to store, transfer, or configure data.

- **Controlled Data Access Environment (CDA):** A data access environment that is managed and maintained by the currency partner. Any export of data sources must be requested and approved.

- **Data Share:** Direct database to database sharing including schemas, tables, views (including regular, late-binding, and materialized views), and SQL user-defined functions managed and maintained by the currency provider, allowing publishers access without a need to store data locally. The publisher and currency provider will need to use the same database architecture and potentially the same vendors.

- **Clean Room:** Publishers query the currency provider via a clean room. The currency vendor clean room will respond to the query with aggregated data which helps to ensure data security and adherence to the privacy and security requirements of the data providers licensed by currency vendors.

## How Data is Validated (QA and Logic Checks) and Reconciliation Process

Data validation activities are required to ensure that ingested data sets are accurate and can support the needs of various business functions.

Data validation and QA must be an initial priority to assess accuracy. Systems should be designed to catch errors as early as possible to prevent downstream complications and reduce risk to the business. Automated tools should be used where possible for detecting and notifying the presence of corrupt data. Dashboards can be utilized for ongoing monitoring and learnings from these dashboards can be included in other standardization practices.

Initial validation steps should confirm that there are no apparent issues with the data sets, including missing data, duplicated records, and basic logical errors:

- Check for null values in important columns: network, household id, telecast start/end time, commercial minutes, household weights, etc.

- Check for irregular impression values: nulls, negative numbers, commercial 3-day viewing > 7-day viewing, etc.

- Check for duplicates as different tables could have different unique identifiers. Duplicates should be checked for at every aggregation step.

- Check for missing dates/weeks.

- Check for empty tables.

If errors with the incoming currency data are found, a reconciliation with the currency partner needs to occur. Typically, this results in the restatement of data once the currency provider fixes any issue on their end. Publisher architecture needs to be able to handle the reprocessing of data for a given restatement range. The form of restatement will vary from currency partner-to-partner as follows:

1. Download a data patch file (programmatic instructions on how to add/delete/update existing data) and rebuild aggregated data.

2. Acquire restated data via API/cloud-based storage /proprietary software for affected date range and rebuild aggregated data.

3. Rebuild aggregated data directly via a data share/clean room.

It's a best practice to implement a means to log and invalidate incorrect or incomplete data. Please note that for some currency partners, this older data can surpass hundreds of terabytes of storage. Most cloud-based storage services support long-term, infrequently accessed storage for this purpose.

## Table #1: List of Common QA Checks

| Data Source(s) | QA Check |
|---|---|
| Personified only<br>(n/a to HH-based data sources) | Demo aggregation checks: confirm that the aggregated impressions sum as expected, e.g., P18-54 impressions = P18-34 + P35-54, P18-64 = P18-34 + P35-64, etc.<br>Demo aggregation checks are only relevant for personified data. With all personified methodologies you should be able to add building blocks for demographic combinations, while HH's with a presence of demographics cannot be added together. |
| All | Post-aggregation missing data checks: for each level of aggregated impression data (e.g., quarterly daypart projections, weekly daypart actuals, weekly selling title actuals, weekly daypart internals, etc.), check each metric (commercial 3-day / 7-day viewing, etc.) for missing data per network/demo/relevant aggregation fields (e.g., week and daypart for weekly daypart actuals). |
| All | Logical checks based on metric definition: confirm that<br>• Program live ≤ program live + same day<br>• Commercial live ≤ commercial live + same day<br>• Commercial live ≤ commercial 3-day impressions ≤ commercial 7-day impressions<br>• Live rating ≤ live + same day rating<br>• Commercial live rating ≤ commercial 3-day rating ≤ commercial 7-day rating |
| All | Standard checks for data irregularities:<br>• Nulls<br>• Numerical values outside of expected range, e.g., commercial 3-day impressions < 0; percentages > 100%<br>• Erroneous data types<br>• Duplicates |

## How Data is Transformed

Prior to the final ingestion, data must be transformed into appropriate forms to ensure accuracy and congruency for all downstream purposes. Although there may be intricacies for each currency provider, a general flow is followed to transform raw data. The steps below should be taken to ensure that data is transformed appropriately. These activities can be conducted within the ETL (extract, transform and load) staging layer.

### Common Viewership Standardization Practices

- Collate the fields that uniquely identify an airing (e.g., network, start time and program name, etc.) For national content, network & start time is typically sufficient.
- Convert the original data provider's time zones to national time (eastern time) to ensure accurate calculations for total viewing.
- Convert to broadcast time (6a to 6a).
- Align network names and callsign mapping.
- Separate the currency provider's channel-specific data into the provider's programming blocks as needed.
- Confirm data accuracy with telecast/commercial as-run data.
- Align with commonly used date/time attributes (broadcast date, broadcast week, telecast start hour, etc.).

### Common Audience Metadata Standardization Practices

- Move categorical variables into separate fields.
- Create a unique audience identifier by combining multiple keys/fields as needed.
- Convert audience data into designated currency for internal system compatibility.

## Best practice notes on data validation and transformation:

- **Validating Data Based on Time Zones:** For sports that broadcast different games in different regions, an aggregation approach must be defined, allowing currency providers to aggregate data into a demo or an advanced audience based on sports broadcast regions.
- **Data Lag and Delivery Cadence:** For combined ACR and STB viewership collection, the overnight live data can have a lag time of approximately three days due to the effort in gathering data.

- **Spot Level Transition:** Currently, commercial 3 and 7-day duration-weighted impressions are being used for transacting as guarantees. To transition to ad spot level transactions, all operating systems across the publisher, currency providers, and agencies must be able to accommodate spot level details and deal structures. Spot level data may be used for reach measurement and insights, but not currency transactions.

- **Currency Grade & Measurement Providers:** New currency data may be used for transactions and guarantees, as well as programming research, insights, and post campaign measurement. Many data collectors can be used for measurement and insight purposes, but not all may be used or ready for currency grade transactions.

- **Data Aggregation:** Aggregation is completed within the ETL staging layer to eliminate the need to perform aggregation in individual systems and enable downstream systems. Package data into demo or advanced audience groups as defined by business needs
    - Preconditioning of data allows for a quick pull of desired data set
    - Data sets can be rolled up to meet business requirements, including a few common methods new currency data is aggregated below:

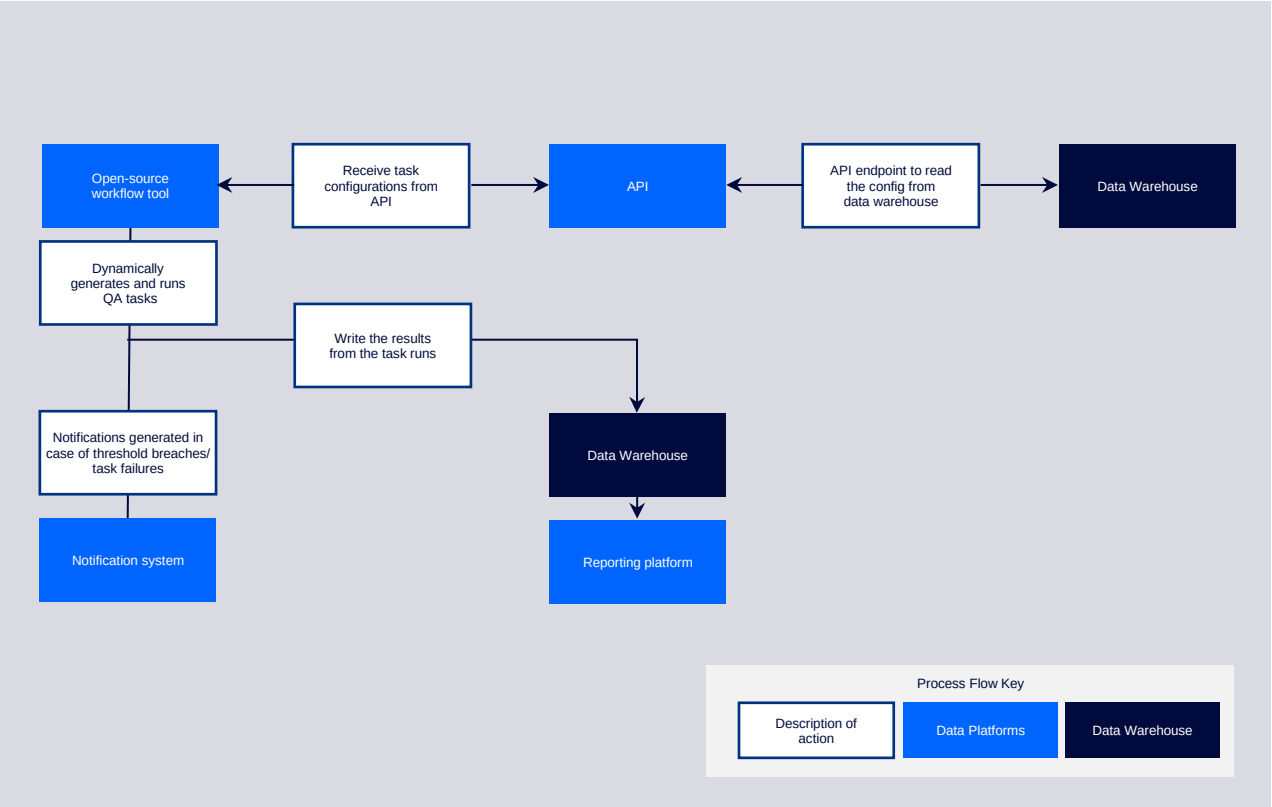
## Table #2: Common Methods of Data Aggregation

| Common Methods for Aggregating New Currency Data |
|---|
| Network, Start time, Unique Telecast ID, Segment level |
| Network, Start time, Unique Telecast ID, Household, Demo level |
| Network, Start time, Unique Telecast ID, Demo level |
| Network, Start time, Unique Telecast ID, Household |
| Network, Start time, Unique Telecast ID, Day part, Demo, Feed type (ex: ‘cable’) level |

## ETL QA Automation Framework

QA checks can be structured or cursory, based on the type of QA and intent of use for a particular currency data. Although a baseline list of QA criteria can be established, the list can evolve to include emerging topics. Having an automated QA framework allows publishers to validate data sets through a structured approach without manual intervention. Dashboards can be utilized to monitor perform quality checks based on input by publisher teams. (a sample can be seen below).

## Figure #2: ETL QA Automation Framework




## How Data is Stored

**Infrastructure requirements:** As new currencies are onboarded, infrastructure requirements must be met to ensure the publisher's ability to ingest and generate accurate predictions. Data is then ingested into the publisher's local data warehouse and funneled through cloud-based platforms.

## Table #3: Data Storage Methods

| Storage Type | Purpose |
|---|---|
| Data warehouse for local storage | Large scale data storage and analysis, and is frequently used to perform large database migration |
| Relay posting data without storing locally | Cloud-based storage service that offers scalable storage infrastructure |

# 05 Data Implementation (Prediction Model Architecture)

Once data sets have been ingested, they can be transformed to generate prediction models and feed downstream planning systems. The prediction modeling process stays somewhat consistent across both demo-based and advanced audience segments. Predictions are separately made for each currency.

A feature store is developed to process and store pre-aggregated data sets needed for generating predictions at scale. A collection of applications can be utilized to help scale and generate predictions. Prediction models can then be stored in a data warehouse and pulled when ready to use. Depending on publisher needs, two architectural models are often utilized:

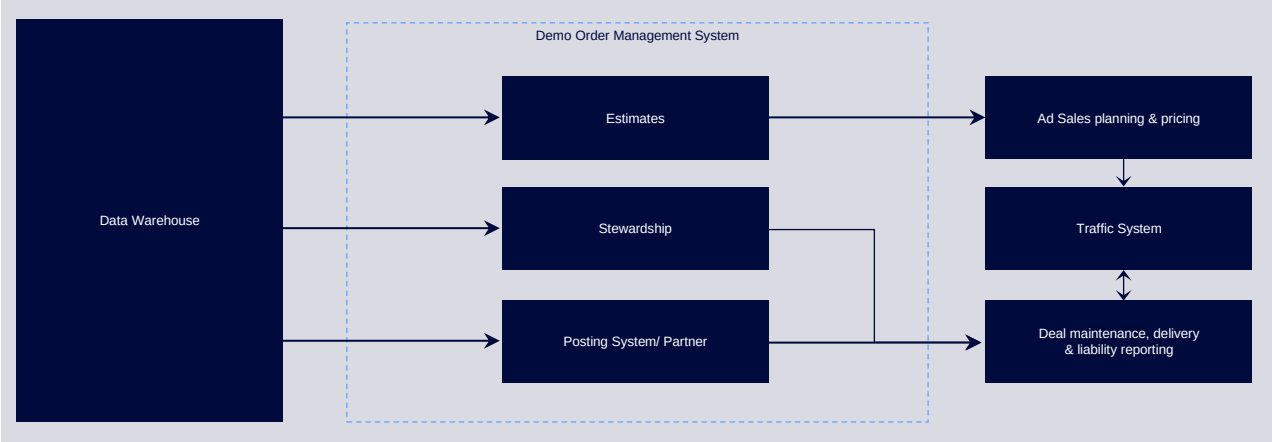
- **Low Level Access:** A method of pulling data directly from a source to generate a models. Although this method is fast due to fewer integration connections and less engineering effort, changes to connections can be difficult and complicated. This method is suited for publishers that have small-to-medium scale modeling needs.

- **Intermediate Abstraction Layers:** Through an API, data can be quickly pulled from various warehouses to generate models at scale. The primary benefit of using an API is to abstract the data source from the modeling code. If, in the future, the data source changes, the API calls can be updated without having to change downstream modelling code. The API can also allow for caching of common queries, allow queuing of requests when computational resources are at capacity, and simplfy modeling code (no need to encode complex database connections). This method is suited for larger networks that must generate a considerable number of models.

# 06 Demo-based Integrations

As noted in general considerations, it is ideal to maintain operational processes where possible. Below highlights where there are differences between existing operational and technical processes for demo-based linear ad sales.

## Figure #3: Demo-based Linear System and Process Flow




Predictions models can be used to create impression and ratings estimates for all licensed currencies, for all demos for each selling title or program. Depending on the currency provider, the demos could be either personified demographics or HHs with demographics. After estimates are generated, they can be ingested into the planning system for plan creation.

Development work was done by a system vendor to create an entirely new system that can adapt to multiple buy types and currencies and be compatible with various existing activation systems. This new system allows users to build a plan for any currency and push into independent activation systems. As a result, publisher users of this new system can continue onboarding new currency partners without further development work, as long as the data input has a consist format and metric – which in all cases is impressions by demographic cuts.

Now that this work was done, other publishers can utilize this new technology to be adaptable to their systems.

## Notes on the process:

The new system that was developed to support multiple currencies is a web-based application for planning and stewardship that can have a direct connection to various planning and activation systems.

- **Plan Approval & EDI Process:** No change is necessary for the plan approval or Cable EDI process. The media plan notes the guaranteed currency. Once a plan is approved an EDI can be sent to the agency with the impression estimates for the guaranteed currency. The package on the agency side should be updated to contain the guaranteed

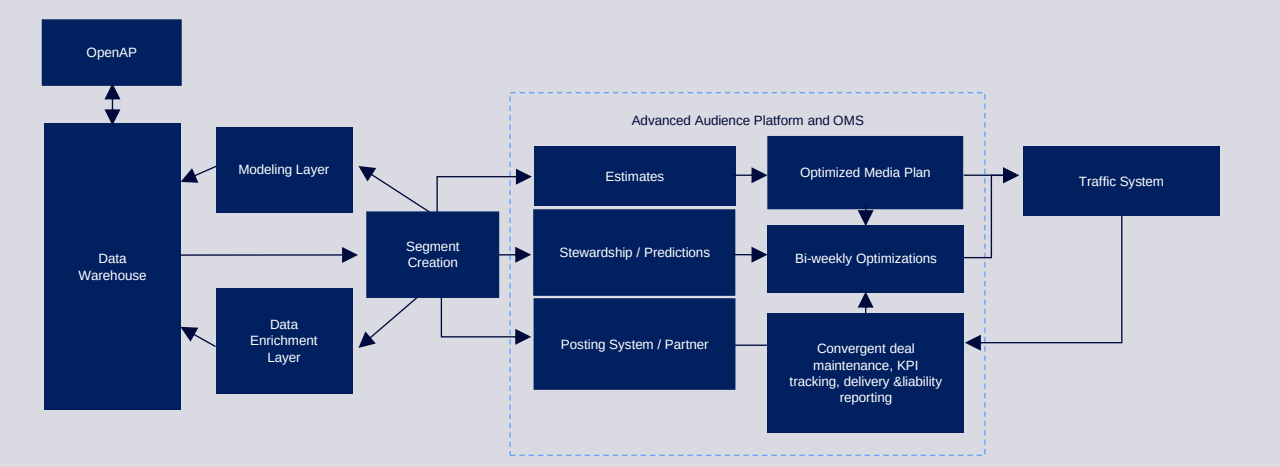
currency, as agreed in the approved plan.

- **Invoicing Process:** No change in invoicing since there is no change to deal activation.
- **Stewardship reporting options:** Commercial 3 and 7-day stewardship reports can be created in the new system for all currencies. Updated actuals and estimates can be ingested regularly for all currencies to manage deal stewardship.
- **Delivery Reporting:** Actualized data can be ingested for all currencies, all demos, and all cable and broadcast telecasts, and linked to each deals as-run logs based on the guaranteed currency. Although, agencies will need to subscribe to new currencies and have new currencies integrated in buying platforms to steward deals and cross reference publishers' posts to validate all final posting data.
    - **Post Validation Process:**
        - Step 1: Check the summary of impressions.
        - Step 2: Identify if a discrepancy is present.
        - Step 3: Check if currency provider has provided a revision to impression numbers. The post may be a snapshot in time and may not reflect a currency providers restated delivery impressions.

# 07 Advanced Audience System Integrations

Advanced audience campaigns can be executed in a separate system, but most principles are similar to demo-based advertising. An advanced audience platform can be used for building advanced segments, generating segment specific prediction models, and creating optimized media plans. Once approved, plans can be booked via standard operating and trafficking systems with automated steps in place to allow for optimizations and locking spots into individual telecasts.

## Figure #4: Advanced Audience System and Process Flow



There are three steps in the advanced audience activation process: (1) creating the audience segment, (2) connecting the audience segment to the currency, and (3) onboarding of the audience viewership data for optimization.

### Step 1: Creating the Audience Segment

Advanced audience campaigns begin with segment creation. There are two defined paths that are followed to create a segment. The audience definition and data provider can be pre-defined and created in advance and sent to the publisher (most commonly via OpenAP) or an RFP can be distributed to the publisher, OpenAP, or 3rd party partner to build an audience, often referred to as "managed service".

- **Path 1: Pre-defined / Created Audience Definition with Preferred Data Partner**
  Many agencies/clients have data partnerships, direct data access, or preferred partners that can be leveraged to create audiences. In this case, the agency will initiate the segment creation process.

- **Path 2: Managed Service Audience Creation**
  An RFP describing an audience is sent to individual publishers, OpenAP or other 3rd party partners to leverage expertise and data partnership to configure the best segment definition options. The segment options can consist of publisher first party data, proprietary audience models, and/or licensed third party data and can be appended to applicable currencies.

### Step 2: Connecting the Audience Segment to the Currency

Regardless of how the audience is created, a preferred method for receiving these audiences is via the OpenAP workflow to enable segment standardization across publishers. Through OpenAP, audiences are converted into OpenIDs which can be connected to the currency provider of choice, appended to their measurement, and shared with the publisher. This execution path could also be achieved directly with currency of choice and subsequently shared with publisher when ready.

The audience segment in the form of OpenID's can also be used to enable digital and addressable activation. For executions where OpenIDs are not used, it's important that the ID frameworks used are consistent for convergent activation and resolution.

Timing for segment creation to publisher ingestion will vary based on both data provider and currency provider but on average can take anywhere from 2-4 weeks.

### Step 3: Segment and Viewership Data Onboarding by Currency Type (Aggregated or Disaggregated)

Depending on the currency provider, there are at least two methods for onboarding a segment and ingesting segment viewership data into an advanced audience platform. With some currency partners, publishers can access disaggregated viewership data at the (anonymized) HH level), and for other currency providers, publishers can receive an audience ID which can be used to pull aggregated data from the currency provider through an API, data share or clean room. The table below outlines the different workflows for segment and viewership data onboarding and optimization with both access points.

## Table #4: Segment Onboarding and Data Ingestion

| Currency Data Aggregation | Definition | Steps |
|---|---|---|
| **Aggregated viewing data** | Audience IDs consisting of aggregated in-segment HH used to access viewership data | • Currency provider sends an audience ID of aggregated in-segment households<br>• Through an API or data share, use an audience ID to download viewership data based on campaign parameters (e.g., data pertain to particular networks, time periods, etc.)<br>• Ingest segment viewership data into advanced audience platform, generate segment prediction models and create optimized media plan.<br>• With aggregated data access, the publisher must have access to a CDA or clean room for reach optimization. |
| **Disaggregated viewing data** | Anonymized and hashed viewership data is provided to publisher at the HH level for the full currency panel | An ID crosswalk with the currency must be in place when using disaggregated data. OpenAP has existing ID crosswalks with all major currency providers. Once established, there are two ways an audience can be received:<br>Option 1:<br>1. Publisher receive the list of in-segment HH IDs (OpenIDs or other ID connection) in a cloud-based storage or clean room connection.<br>2. Convert in-segment IDs into the currency's ID framework to connect to the currency's viewership panel.<br>3. Note: Crosswalks between all parties need to be coordinated to ensure that the segment is defined identically by the publisher and currency provider. Staggered refreshes will result in discrepancies.<br><br>Option 2:<br>1. Audiences are sent to the currency provider to append to their measurement panel. Connections between segment provider and currency need to be established. This can be most quickly and easily facilitated using the OpenID connections.<br>2. Segments will be received by the publisher from the currency provider when ready.<br>3. Ingest the segment from the currency provider to a cloud-based storage or clean room connection. A file format that incorporates data typing and compression is preferred (e.g., Apache Parquet) to a flat-text file such as CSV.<br>4. Ingest segment viewership data into advanced audience platform, generate segment prediction models and create optimized media plan.<br><br>• Note: With disaggregated data access, reach optimization and measurement can be done directly through the data warehouse. |

## Best practice notes on segment creation and maintenance:

- **Segment Refresh:** New currencies have a more stable userbase and a quarterly segment refresh is not required to keep the audience set relevant. Ideally, predictions for segments should be refreshed monthly to incorporate new data into models. However, audience definitions should only be refreshed for a new campaign if desired by client and/or if data used in defining the audience has significantly changed and is worth incorporating (or as otherwise required by law). Changing the audience on linear, mid-campaign, will cause pricing volatility that compromises prediction/optimization stability.
    - A segment typically has a set validity time period and currencies will deprecate expired audience IDs. Through the API, publishers should request the latest version of the audience ID to ensure the correct segment is used.

- **Segment Size and Viewership:** Data driven linear is built off predictive models to execute a campaign against an advanced segment but delivered on a national scale. Unlike targeting in digital, where the effect of a small segment is volume of impressions and dollars cleared, small segments in national linear have a negative effect on the stability of predictive models, stewardship and KPI performance. Each currency provider uniquely scales their panel to the US Census, so receiving expected scaled size of a segment is important at the onset. To ensure strength of predictions, segment size minimums should be established. Ideally the viewership size should be identified when appended to the currency to ensure size minimums are held based on average viewership as opposed to size of population. For example, younger segments could meet the size threshold based on total population but could fall well below the ideal size based on viewership %, which is what matters most for predictions and performance stability.

- **Expediting Through Direct Connections:** Establishing direct connections with data providers is important to enable the minimization of identity spaces and expediting audiences from point A to Z.

## Notes on the process:

After the segment viewership data is ingested, prediction models can be generated for impressions and reach and used to inform the optimal media plan. The optimized media plan is created to deliver on client's KPIs. Once a plan is approved it can be pushed from an advanced audience platform to a standard activation system with automated steps in place to allow for optimizations and locking spots into individual telecasts.

- **EDI Process:** Cable EDIs can be sent at the start of the quarter and subsequently updated
  bi-weekly to capture the telecast placement and additional optimized ADUs.

- **Invoicing Process:** No change in invoicing.

- **Stewardship reporting options:** Updated actuals and estimates can be ingested regularly for all segments to manage deal stewardship.

- **Delivery Reporting:** Actualized data can be ingested into publisher's systems for all segments and linked to each deals as-run logs based on the guaranteed currency. Publisher systems may also have a direct integration with OpenAP for 3rd party segment post verification. It is a best practice that all currency providers have a direct integration with OpenAP for both segment creation and posting.

# 08 Exhibit 1: Sample Data Schema Provided to Prospective New Currency Vendors

| Data Category | Field Name | Example / Data Type | Additional Details | Required |
|---|---|---|---|---|
| Telecast Information | Network Publisher Name | PARAMOUNT GLOBAL | True for Linear Viewing (non-VOD, etc) | |
| Telecast Information | Network Name | COMEDY CENTRAL | | X |
| Telecast Information | Network Callsign | CMDY | A map is required to standardize callsigns to internal network names | |
| Telecast Information | Series/Program Name | Teen Mom | Unique for a particular airing | X |
| Telecast Information | Series ID | 12345 | | |
| Telecast Information | Episode Name | Season 2, Episode 5 | Unique for a particular episode within the series | |
| Telecast Information | Episode ID | 54321 | | |
| Telecast Information | Unique Telecast ID | SHxxxxxxxxx | This id is unique to this program, network, time | X |
| Telecast Information | Program Language | EN/ES/FR/etc.. | | |
| Telecast Information | Genre | Sports/News/etc. | | |
| Telecast Information | Sub Genre | Baseball | | |
| Telecast Information | Broadcast Type | B/C/S/U | Broadcast/Cable/Syndicated/Unknown | X |
| Telecast Information | Is Linear | T/F | True for national/local live/timeshifted, False for VOD/non-supported | X |
| Telecast Information | Is National | T/F or 0/1 | True for national | X |
| Telecast Information | Is it a Breakout | True/False or 0/1 | Was this a special previous unscheduled breakout telecast? | X |
| Telecast Information | Affiliate Name | WNBC | | X |
| Telecast Information | Station ID | Integer | | |
| Telecast Information | Airing Start Time (EST5EDT) | YYYY-MM-DD HH:MM:SS | Adjusted to East Coast (i.e. if a show X airs at 8pm Local time on MTV. This should be the 8pm timestamp) | X |
| Telecast Information | Airing End Time (EST5EDT) | YYYY-MM-DD HH:MM:SS | | X |
| Telecast Information | Broadcast Year | YYYY | | |
| Telecast Information | Broadcast Month | 1-12 | | |
| Telecast Information | Broadcast Week | 0-53 | | |
| Telecast Information | Day of Week | 0-6 | 0=Sunday, 1=Monday, … | |
| Telecast Information | Program Duration (s) | 3600 | Duration of the Telecast airing | |
| Telecast Information | Total National Commercial Duration (s) | 1000 | Summed national commercial seconds aired in the telecast | X |
| Telecast Information | Total Local Commercial Duration (s) | 1000 | Summed local commercial seconds aired in the telecast | X |
| Viewership Information | HH ID | Alphanumeric | Unique Id of the HH watching the telecast | X |
| Viewership Information | Viewing Weight of Household | Float | How many Census HHs does this HH represent | X |
| Viewership Information | Time-Delay of Viewing (s) | 0 | 0 for Live, otherwise seconds of time-viewing delay | X |
| Viewership Information | Program Seconds Viewed in Session | 3600 | How many seconds of the telecast were viewed | X |

| | | | | |
|---|---|---|---|---|
| Viewership Information | National Commercial Seconds Viewed | 500 | Of the possible national commercial seconds they could have viewed, how many did they view | X |
| Viewership Information | Local Commercial Seconds Viewed | 500 | Of the possible local commercial seconds they could have viewed, how many did they view | X |
| Ad Spot Information | Unique Ad ID | Alphanumeric | | X |
| Ad Spot Information | Ad Advertiser | String | | |
| Ad Spot Information | Ad Name | String | | |
| Ad Spot Information | Ad Duration/Length | Integer | | X |
| Ad Spot Information | Ad Start time (EST5EDT) | YYYY-MM-DD HH:MM:SS | Adjusted to East Coast (i.e if a show X airs at 8pm Localtime on MTV. This should be the 8pm timestamp) | X |
| Ad Spot Information | Ad Pod | Integer | | |
| Ad Spot Information | Ad Pod Position | Integer | | |
| Ad Spot Information | Unique Airing ID | Alphanumeric | Used to map to the associated telecast airing | X |
| Ad Spot Information | HH ID | Alphanumeric | Used to map to the associated HH viewing the ad | X |
| Ad Spot Information | Ad Seconds Viewed | Integer | How many seconds of the ad was viewed by the HH (alternatively this could be a floating-point percent of the ad viewed) | X |
| Household Demography | HH ID | Alphanumeric | Used to map demography to the associated HH | X |
| Household Demography | Broadcast Year | YYYY | | X |
| Household Demography | Broadcast Week | 1-52 | | X |
| Household Demography | Geographic area | | Geographic area of Household | |
| Household Demography | Zip Code | | Zip Code of Household | |
| Household Demography | Number of Children | Integer | Number of Children in HH (aged 0-17) | |
| Household Demography | Number of Adults | Integer | Number of Adults in HH (aged 18+) | |
| Household Demography | Race/Ethnicity | True/False or 0/1 | Does this household identify as being <race/ethnicity> | X |
| Household Demography | Range of HH Income (<10K, 10-14K, 15-19K, etc…) | Integer | If using binned data, a separate lookup table of household income will be needed to map the binned value to the range of incomes | X |
| Household Demography | C0_3 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | C4_6 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | C7_9 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | C10_12 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | C13_15 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | C16_18 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F18_20 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F18_49 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F21_24 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F25_29 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F30_34 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F35_39 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |

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| Household Demography | F40_44 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F45_49 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F50_54 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F55_64 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | F65_PLUS | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M18_20 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M18_49 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M21_24 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M25_29 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M30_34 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M35_39 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M40_44 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M45_49 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M50_54 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M55_64 | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Household Demography | M65_PLUS | True/False or 0/1 | Does the household contain someone in this gender/age group | X |
| Segment Universe Sizing | Broadcast Year | YYYY | Year associated with the segment size | X |
| Segment Universe Sizing | Broadcast Month | 1-12 | Month associated with the segment size | |
| Segment Universe Sizing | Broadcast Week | 1-52 | Week associated with the segment size | X |
| Segment Universe Sizing | Geographic Area | NULL or Integer or String | If Integer, need a mapping of geographic area ID to geographic area name (e.g., 1 = New York City Metro), Null = All US | |
| Segment Universe Sizing | Network Callsign | MTV | | |
| Segment Universe Sizing | Segment Definition | M18-49 | Segment could be a demo, all HHs/P2+, or an advanced audience | X |
| Segment Universe Sizing | US Census Level Segment Estimate | Integer | Segment could be a demo, all HHs/P2+, or an advanced audience | X |